

NEW SPECIES FROM SOUTH AMERICA. II.

Donald R. Simpson
Field Museum of Natural History

In the previous paper of this series¹ I described four new species whose status may now be reviewed. *Tabebuia schunkevigoi* has been examined by Dr. Alwyn Gentry of the Missouri Botanical Garden whose excellent studies in the Bignoniaceae are widely known to taxonomists interested in tropical plants. Dr. Gentry has found that *T. schunkevigoi* belongs to and is a synonym of a widespread, seldom collected, and previously poorly known species whose earliest valid name is probably *T. impetuginosa* Martius. The second species of that paper, *Demosthenesia dudleyi* is now represented by additional collections which have shown it to be one of the most distinctive species of the genus. Those additional collections are Dudley 11026 and 11102 both from the Cordillera Vilcabamba of southeastern Peru. Of the third species, *Erythroxyton pacificum*, no additional collections are known to me, and finally for *Pentagonia rubriflora*, an earlier collection distributed from the University of California at Los Angeles has proven to belong to this species. This collection (José Schunke Vigo 6287) is also from near the village of Sión in Prov. Mariscal Cáceres of Dept. San Martín. The collection number is not that of Mr. Schunke's own series but pertains to a separate number series for the project of botanical-pharmacological studies headed by Drs. Mildred Mathias and Dermot Taylor of U.C.L.A.

The following new species are, like those of the previous paper, all woody plants of the forested parts of Peru and serve to illustrate how fragmentary still is our knowledge of the plants of the western edge of the Amazon Basin. It is astonishing to encounter a tree on the wet eastern ramparts of the Andes whose close relatives are known only from the dry forests of Minas Gerais State, Brazil, a disjunction of over 2000 miles (see below under Styracaceae). Such disjunctions are not rare across great expanses of the Amazonian and Orinocan rain forests especially where the local climatic or edaphic conditions of two or more widely separated localities approximate each other, but the disparity in such conditions between the Vilcabamba Range in Peru and the "cerrado" vegetation of central Minas Gerais makes this a very unusual case.

1. Simpson, Donald R. 1972. New Species from South America. I. Fieldiana Botany 36 (1): 1-11.

ANNONACEAE

GUATTERIA CINNAMOMEA D. Simp. sp. nov.

Arbor ca. 40 m. alta, diametro trunci ca. 48 cm. Ramulus a pilis erectis, cinnamoneis dense lanatus. Folium longum et angustum; petiolo 3-6 mm. longo; lamina membranacea, liniari-oblan-ceolata, base acuta, apice acuminato, (10) 15-23 cm. longa, (2.5) 3.5-4 (4.5) cm. lata. Flores singuli vel bini in axillis folio-rum; pedicelo 2-2.5 cm. longo, lanato vel sparsius pubescenti; sepalis reflexis, late lanceolatis, acuminatis, 10-12 mm. longis, 4-6 mm. latis, breviter connatis ad basim; petalis obovatis, a-pice late acuto, 18-25 mm. longis, eis verticilli externi 8-10 mm. latis, eis interioribus 11-15 mm. latis; connectivo antherae glabro, laevi, plano; stigmatibus minute pubescentibus. Pedi-celli fructum usque 4 cm. longi; toro depresso hemisphaerico, diametro 1-3 cm.; monocarpis anguste ellipticis vel elliptico-oblongis, apice acuto et minute apiculato, 12-15 mm. longis, diametro ca. 4-6 mm.

Tree ca. 40 m. tall, trunk diameter 19 inches (ca. 48 cm.). Branchlets very densely woolly with cinnamon-colored, erect hairs, becoming glabrous on older parts below. Petiole mostly 3-6 mm. long, pilose; blade membranous, linear-oblan-ceolate, base acute, apex acuminate, (10) 15-23 cm. long, (2.5) 3.5-4 cm. wide, spar-sely puberulous to glabrous above, sparsely villous below except pilose on the midvein, venation visible on both surfaces, 2 par-allel submarginal veins on each side, the inner strongly devel-oped, the outer less so, veins projecting about equally on both surfaces, ca. 30-40 pairs of secondary veins. Flowers borne 1 or 2 per leaf axil; pedicel ca. 2-2.5 cm. long, woolly to spar-sely pubescent. Sepals lanceolate, acuminate, reflexed, 10-12 mm. long, 4-6 mm. wide at base, narrowed to the long-acuminate apex, shortly connate at base, pilose outside and inside; petals ob-ovate, apex broadly acute, sparsely pubescent throughout except densely pilose outside toward the base, 18-25 mm. long, the outer petals 8-10 mm. wide, the inner 11-15 mm. wide; anther connective glabrous, smooth and flat; stigmas minutely pube-scent. Fruiting pedicels to 4 cm. long; torus depressed hemi-spheric, 1-1.3 cm. diameter; monocarp stipes thin, mostly 1.5-2 cm. long; monocarps narrowly elliptic or elliptic-oblong, a-pex acute and minutely apiculate, 12-15 mm. long, ca. 4-6 mm. diameter.

PERU: Dept. Huánuco: Prov. Pachitea; Dist. Honoria; car-retera a Tournavista, bosque seco tropical (Tosi system), alt. 220 m., (Peruvian Forest Service Dendrology Project tree no. 70-P) Eduardo Janssen S. 133 - flowering material (holotype F; isotypes LIM, MAD, US), 10 - fruiting material (paratype F; isoparatypes LIM, MAD, US), wood samples at LIMw, MADw, USw, and others.

This seems to belong to section *Trichoclonia* R. E. Fries, and is probably closely related to *G. villosissima* St. Hil. The rather long reflexed sepals resemble those of *G. villosissima*, *G. tomentosa*, and other species of this section, but this feature is also seen in section *Brachystemon* R. E. Fries, especially in *G. sellowiana*, and *G. myriocarpus*.

This new species is easily recognized by the long, narrow, linear-oblong leaves and dense woolly pubescence of the branchlets. *G. cinnamomea* differs from *G. trichoclonia* and *G. tomentosa* by its membranous leaves with acutely narrowed leaf bases as contrasted with the thick, subcoriaceous leaves with rounded bases of the two latter species.

GUATTERIA SCALARINERVIA D. Simp. sp. nov.

Arbor; ramulis versus apicem adpresse sericeis. Folia mediocria; petiolis 1.5-2 cm. longis; laminis chartaceis, plerumque oblongis, rariter ellipticis, base rotundo vel late acuto et in petiolos longe decurrentibus, apice rotundo-acuto et caudato, supra glabris, subtus sparse adpresse sericeis, in superficiebus ambabus verruculoso-punctatis, 16-23 cm. (acumine 1.5-3 cm. longo incluso) longis, 4.5-8 cm. latis, costa nervisque (nervo submarginali incluso) impressis supra, subtus valde prominentibus, nervis utroque costae latere 16-20. Flores fasciculati, cauliflori vel ramiflori; pedicellis 23-30 mm. longis; sepalis ascendentibus et leviter convexis, ovatis, acutis, extus nitidis; petalis impolitis, late ellipticis, late acutis ad apicem, ubique sericeis sed extus ad basim densioribus. Fructi a pedicello 3-3.8 cm. longo fulcrati; monocarpis cylindrico-ellipsoideis, plerumque 17-19 mm. longis, diametro 7-9 mm., nitidis, glabris vel sparse sericeis; stipite monocarpi plerumque 12-15 mm. longo, longitudinaliter 4- vel 5- porcato sulcatoque, diametro ca. 2 mm.

Tree; branchlets, especially near the tips, sericeous with somewhat appressed, moderately dense, rigid, straw-colored hairs, soon glabrous, the branchlet bark reddish-brown. Petiole 1.5-2 cm. long, channelled above, sparsely pubescent with long, semi-appressed, rigid hairs; blades chartaceous, usually oblong, rarely elliptic, base rounded to broadly acute, decurrent onto the petiole, apex rounded-acute and caudate, glabrous above, sparsely appressed sericeous beneath, verruculose-punctate on both surfaces, 16-23 cm. long including the 1.5-3 cm. long caudex, 4.5-8 cm. wide, midnerve and secondaries impressed above, very prominently raised beneath, secondary nerves ca. 16-20 each side, spaced usually at least 8 mm. apart, submarginal nerve prominent, well in from margin. Flowers clustered, cauliflorous or ramiflorous; pedicels 23-30 mm. long, glabrous or with a few, scattered, appressed hairs, surface somewhat nitid. Sepals ascending and somewhat convex, ovate, apex acute, 7-10 mm. long, 6-8 mm. wide, nitid and sparsely sericeous with appressed hairs out-

side, glabrous within; petals broadly acute at apex, 14-18 mm. long, 11-14 mm. wide, inner petals differing only in being slightly shorter, very densely sericeous outside at the base becoming less densely pubescent toward the apex, less densely pubescent on the inner surface; stamens very numerous, connective expanded above the anther sacs, somewhat convex; pistils numerous. Fruiting pedicel 3-3.8 cm. long; monocarps cylindrical-ellipsoidal, mostly 17-19 mm. long, 7-9 mm. in diameter, nitid, glabrous or usually sparsely sericeous; monocarp stipes mostly 12-15 mm. long 4- or 5- ridged and grooved longitudinally, ca. 2 mm. diameter.

PERU: Dept. Loreto: Prov. Maynas; Dist. Alto Nanay; "bosque humedo tropical" (Tosi system), Santa Maria de Nanay, alt. 150 m., (Peruvian Forest Service Dendrology Project tree no. 229-I) Narciso Reyna R. 40 - leaves and twigs only (holotype F; isotypes LIM, MAD, US, and others), 16 - flowers and fruits only (paratype F; isoparatypes LIM, MAD, US, etc.), wood samples at LIMw, MADw, USw, and others.

This species belongs to section *Stenocarpus* R. E. Fries. The leaf outline and venation pattern closely resemble *G. inundata* Mart. but differs from it and all other species of the section in clusters of numerous flowers borne on the stem or major branches.

The markedly verruculose-punctate leaves would in Fries' classification place this species in his section *Mecocarpus*. It is more likely that it is closely related to *G. inundata* Mart. and *G. phanerocampa* Diels, both placed by Fries in his section *Stenocarpus*, which by his definition lacks the verruculose punctae on the leaves. On examination, however, it can be seen that most specimens that he cited under the species of this section show a weakly developed verrucosity which sometimes is not easily distinguished from the punctae of section *Mecocarpus*. One recent collection (Simpson 786), unquestionably belonging to *G. phanerocampa* and from near the type locality, has leaves with the dense punctae of section *Mecocarpus*! I think it probable that section *Mecocarpus* may not be a natural assemblage, and that the presence or absence of punctae is not as meaningful in classification of *Guatteria* species as was assumed by Fries. Section *Stenocarpus* on the other hand, does appear to represent a natural assemblage of closely related species, and it is to this section that the present new species belongs.

GUATTERIA SCHUNKEVIGOI D. Simp. sp. nov.

Arbor 14-15 m. alta; diametro trunci 10 pollice. Ramuli, petioli, pagina inferna foliorum, atque pedicelli a pilis aureis dense velutini. Petioli 8-12 mm. longi, diametro ca. 5-6 mm. Lamina firme chartacea vel subcoriacea, elliptica vel oblonga vel oblongo-obovata, rotundata breviter decurrentaque ad basim, versus apicem acute angustata et apice longe acuminate, (17) 19-28 cm. (acumine 2-3 cm. longo incluso) longa, 6-9 (11) cm. lata, costa nervisque supra parum depressis, subtus valde prominentibus,

nervis in nervum undulatum submarginem terminantibus, venulis tertiariis dispositinem clathratis vel subclathratis ornatis. Flores (2) 3-5 fasciculati, ramiflori; pedicello 18-25 mm. longo, 5-8 mm. supra basim articulado; sepalis late triangularis, 6-8 mm. longis, ad basim 7-9 mm. latis, extus dense pubescentibus, intus praeter marginem pubescentem glabris; petalis obovatis, ad apicem truncatis vel retusis, dense pubescentibus sed intus ad basim glabris; petalis verticilli externi 12-16 mm. longis, 10-15 mm. latis; petalis verticilli interni 14-20 mm. longis, 10-18 mm. latis; connectivis antherarum umbonatis; stigmatibus dense adpresse sericeis. Monocarpi glabri vel sparse sericei, ellipsoidales, apiculati; stipitibus 1-1.5 mm. crassis, 15-26 mm. longis.

Tree 14-15 m. tall; trunk diameter 10 inches. Branchlets terete, densely velvety pubescent with short, erect, golden-yellow hairs. Petioles 8-12 mm. long, densely velvety pubescent, shallowly channelled above, ca. 5-6 mm. in diameter; blade firm chartaceous or subcoriaceous, elliptic or oblong or oblong-obovate, base rounded and very shortly lecurrent, acutely narrowed to the long-acuminate apex, (17) 19-28 cm. long including the 2-3 cm. long acumen, 6-9 (11) cm. wide, subglabrous above except sericeous along the midvein and the secondary veins (younger leaves also sparsely sericeous between the veins with straight, scattered, appressed hairs), densely velvety pubescent beneath on the midvein and secondary veins, the surface otherwise less densely but uniformly velvety pubescent; midvein and secondary veins slightly depressed above, very prominently projecting beneath, the secondary veins joining to form an undulating submarginal vein ca. 2 mm. from the margin, tertiary veins clathrate or subclathrate. Ramiflorous, usually (2) 3-5 flowers clustered at the leafless nodes, minute flower buds in the axis of some leaves. Pedicel (= peduncle of Fries' descriptions) 18-25 mm. long, articulation 5-8 mm. above base, densely velvety pubescent. Sepals broadly triangular, 6-8 mm. long, 7-9 mm. wide at base, densely pubescent outside, pubescent near the margin within, otherwise inner surface glabrous, minutely rugose, drying black; petals obovate, apically truncate or retuse, rarely rounded, outer petals 12-16 mm. long, 10-15 mm. wide, inner petals 14-20 mm. long, 10-18 mm. wide, densely pubescent both surfaces except glabrous near the base within; anther connective umbonate; stigmas densely appressed sericeous with small, white hairs. Monocarps glabrous or with a few, scattered, appressed hairs, ellipsoidal, apiculate; stipes 1-1.5 mm. thick, 15-26 mm. long.

PERU: Dept. San Martín: Prov. Mariscal Cáceres; Dist. Campanilla; camino a las Achiras, al sudoeste del caserío de Sión, J. Schunke V. 3551 (holotype F; isotypes not yet distributed).

This is a species of section *Tylodiscus* R. E. Fries, and is probably most closely related to *G. ucayalina* Huber. It differs from *G. ucayalina* and most other species of the section in the very dense, persistent pubescence and the flowers borne in clusters at the nodes of leafless, older branchlets.

This very distinctive species is named for the collector, Mr. José Schunke Vigo. Mr. Schunke has in recent years collected principally in the accessible parts of Provincia Mariscal Cáceres, especially around Tocache, Campanilla, and Sión. There he has been able to recollect many species not encountered since Poeppig's stay at Tocache in 1829 and 1830, as also several new taxa.

TETRAMERANTHUS LAOMAE D. Simp. sp. nov.

Arbor 25 m. alta. Ramuli graciles, diametro prope apicem 3-4 mm., ad apicem per pilis stellatis dense tomentosus, mox glabris. Folia parva; petiolo gracili, ca. 12-15 mm. longo; lamina tenui, membranacea vel chartacea, 8.5-12.5 cm. longa, 3.4-5.5 cm. lata, obovata vel oblanceolata, ad apicem rotundata et acute apiculata (apiculo 2-3 mm. longo), sensim angustata basim versus et in basim decurrentem. Flores singuli in axillis foliorum; pedicellis 6-14 mm. longis, sparse stellatim tomentosus, ad basim articulatis, supra articulum bracteis carentibus, infra articulum bibracteatis; bracteis oppositis, ca. 1.5-2 mm. longis, linearibus, abaxialiter canaliculatis, a pilis stellatis alutaceis densissime pubescentibus. Flores flavi; sepalis late ellipticis vel oblongis, ad apicem late acutis vel rotundatis, ca. 2.5 mm. longis, 2 mm. latis, extus dense stellatim pubescentibus, intus glabris; petalis verticilli externi late ovato-ellipticis, ad apicem acutis, 15 mm. longis, ca. 8 mm. latis, sparse pubescentibus praeter extus ad basim dense pubescentibus et intus ad basim glabris; petalis verticilli interioris anguste ellipticis vel elliptico-oblanceolatis, 8-11 mm. longis, 3-3.5 mm. latis, pubescentia ut in verticillo altero; connectivis antherarum expansis et applantis; pistillis octo, dense pilosis; stigmatibus sessilibus, glabris. Fructus ignotus.

Tree 25 m. tall. Branchlets thin, only 3-4 mm. diameter in the leaf-bearing parts, tomentose near the tips with minute, stellate hairs, soon glabrous. Petiole thin, mostly 12-15 mm. long; blade thin, membranous or chartaceous, 8.5-12.5 cm. long, 3.4-5.5 cm. wide, obovate or oblanceolate, apex rounded and with an acute apiculus 2-3 mm. long, gradually narrowed to the decurrent base, glabrous above or sparsely stellate puberulous on the midvein proximally, sparsely stellate puberulous along the midvein below, midvein and secondary veins impressed above, projecting beneath, secondary veins obliquely arcuate, apically conjoined ca. 4 mm. from the margin. Flowers borne singly at a node, sometimes appearing to be clustered when the internodes

are much condensed at the branchlet apex; pedicels 6-14 mm. long, sparsely stellate tomentose, articulate at base, no bracts above articulation, two opposite bracts subtending the articulation, ca. 1.5-2 mm. long, linear, channelled, very densely pubescent with yellowish-white, stellate hairs, sometimes also a smaller bract adaxially. Flowers yellow (fide collector); sepals broadly elliptic or oblong, broadly acute or rounded at the apex, ca. 2.5 mm. long, 2 mm. wide, densely stellate pubescent outside, glabrous within; petals of the two whorls unequal in size; outer petals broadly ovate-elliptic, apex acute, 15 mm. long, ca. 8 mm. wide, densely stellate pubescent outside near the base, otherwise pubescent with scattered stellate hairs throughout except near the base within where glabrous; inner petals narrowly elliptic or elliptic-oblong, 8-11 mm. long, 3-3.5 mm. wide, pubescence like that of the outer petals; anther connective expanded and flat on top; carpels 8 in number, densely pilose; stigmas sessile, glabrous. Fruit unknown.

PERU: Dept. Loreto: Prov. Alto Amazonas; along the Yurimaguas to Tarapoto highway at kilometer 19 from Yurimaguas, in "bosque humedo tropical" (fide system of Tosi & Holdridge), alt. 115 m., Manuel Anibal Soria S. 64 (holotype F; isotype MOL).

This is the fourth collection known for this genus which is recognized by the 4-merous flowers; i.e. sepals 4, and petals 4 + 4. Only two other species are known, both described by Fries. They are *T. duckei*, based on a collection from Manaus, Brazil (Ducke 23919), and *T. macrocarpus* based on a collection from Vaupes Comm., Colombia (R. E. Schultes & Isidoro Cabrera 17091). A third collection from Guania Intendencia, Colombia (R. E. Schultes, et al. 18157) was mentioned by Fries under *T. macrocarpus*, but because of the lack of flowers its assignment was uncertain.

T. laomae resembles *T. macrocarpus* in leaf outline but differs from it in texture, thickness, venation pattern, petiole diameter, etc.

The epithet of this new species honors Ing. Rafael Lao Magín, dendrologist in charge of the systematic laboratory, Faculty of Forest Sciences, National Agricultural University of Peru, at La Molina, Lima. Mr. Lao sent me this specimen together with several from his own collections, all excellent material and mostly of very rarely collected tree species.

LEGUMINOSAE

INGA TOCACHEANA D. Simp. sp. nov.

Frutex vel arbor parva, 3-8 m. alta. Folia plerumque 4-

(rarius 2- vel 5-) jugata, petiolo et rache nuda vel anguste marginata; petiolo 0.4-1.2 (3.5) cm. longo; rache 4-6 (8) cm. longa; petiolulo 1 mm. longo vel minori; folioliiis membranaeis vel chartaceis, (2) 3.5-7 (8) cm. longis, (1.5) 2.5-3 (3.7) cm. latis, ellipticis vel oblanceolatis vel obovatis, base acuta, apice caudato, acuminato, acumine 7-12 mm. longo. Inflorescentiae capitatae, ad nodos veteriorum, plerumque aphyllorum ramulorum singulatim portatae; pedunculo (6) 10-15 cm. longo, folia aequantes vel excedentes; pedicellis 1-2 mm. longis; bracteis 0.6-2.5 mm. longis, oblanceolata vel spatulatis, apicibus plerumque trilobatis, lobis acuminatis. Calyx ad anthesem 1.5-2 mm. longus, lobis non altis, ciliatus; corolla anguste infundibuliformis, ca. 8-11 mm. longa, glabra; stamina ca. 2 cm. longa, tubo filamentorum corallam non excedentem. Fructus complanatus, margine elevato, rectaus vel parum arcuatus, usque ad 3 cm. latus et 29 cm. longus.

Shrub or tree 3-8 m. tall. Branchlets longitudinally striate, terete to slightly angled in cross-section, lenticillate. Leaves mostly 4- (rarely 2- or 5-) jugate, (8) 10-14 cm. long, petiole and rachis nude or narrowly margined; stipule 3-4.5 mm. long, linear or acicular; petiole usually short 0.4-1.2 (rarely to 3.5) cm. long, channelled above, glabrous; rachis 4-6 (8) cm. long, glabrous above; glands sessile at each node of the rachis, cupulate, ca. 0.8 mm. diameter by 0.5 mm. high; leaflets subsessile, the petiolule not exceeding 1 mm., membranous to chartaceous, elliptic or oblanceolate to obovate, mostly (2) 3.5-7 (8) cm. long by (1.5) 2.5-3 (3.7) cm. wide, caudate, acuminate, acumen 7-12 mm. long, base acute. Inflorescences capitate, borne singly in leaf axils of older twigs or at the nodes of older, leafless branches; peduncle glabrous or sparsely puberulent near base and apex, (6) 10-15 cm. long and usually equalling or exceeding the leaves; bracts subtending the pedicels 0.6-2.5 mm. long, oblanceolate to spatulate, apex often trilobed, the lobes acuminate, inner surface glabrous, outer surface hispid in the apical one-third. Flowers subsessile, the pedicels 1-2 mm. long, glabrous; calyx campanulate, 1.5-2 mm. long, glabrous or with a few scattered hairs, the lobes shallow, ciliate margined; corolla narrowly funnelform, mostly 8-11 mm. long, glabrous; stamen tube not exceeding the corolla; stamens mostly about 2 cm. long. Fruit flattened, margins elevated, straight or somewhat curved, the largest pod available is 3 cm. wide and ca. 29 cm. long.

Type: José Schunke V. 3789, from Tocache, Peru.

PERU: Dept. San Martín: Prov. Mariscal Cáceres; Dist. Tocache Nuevo; along the road to the old town of Tocache, alt. ca. 500 m., J. Schunke V. 3789 flowers and fruit (holotype F); Quebrada de Huasca Yacu (near New Tocache), alt. ca. 500 m., J. Schunke V. 4800. Prov. San Martín; near Tocache, Spruce 4565 (dupl. at F, also photo of dupl. at B, negative no. 1079).

This species obviously belongs in Bentham's section *Diadema*, and is probably related to *I. nutans* (Vell.) Mart. and *I. diadema* (Vell.) Mart. The latter two species are both endemic to coastal Brazil in the area around Rio de Janeiro and differ also from *I. tocachiana* in several morphological features. Most obvious are the thin, membranous leaflets with caudate apex of the latter species which contrasts with the more rigid, apically acute leaflets of the former two species.

The Spruce collection was tentatively placed by Bentham (1874) with *I. diadema* but with the comment that "... they are in fruit only, and cannot not be safely determined". Macbride (1943) placed this Spruce collection in *I. tarapotensis* Benth., but it is certainly not that species. *I. tocachiana* differs from *I. tarapotensis* in that the former has membranous leaves, leaflets mostly 4 pairs and apically caudate, much longer peduncle, and stamen tube included, contrasted with subcoriaceous leaves, leaflets 2-3 pairs and apically acute, the peduncle short, and the stamen tube usually exerted ca. 4-5 mm. in the latter species.

The Schunke collections perfectly match the Spruce specimens and there is no doubt that they are conspecific, I expect that future collections of this species will show it to be an endemic of the Middle Valley of the Huallaga River.

MACROLOBIUM TAYLORI D. Simp. sp. nov.

Arbor ca. 5 m. alta. Folia paripinnata, foliola bijugata; petiolis 10-15 mm. longis; rachibus 24-35 mm. longis; foliolis firme chartaceis, ellipticis vel elliptico-oblongis, acutis ad basim, apice obtusi-apiculato, glabris vel costa supra sparse puberulo; foliolis paris inferioris plerumque 4.5-7.5 cm. longis, 2.2-3.5 cm. latis; foliolis paris apicalis (7.5) 8.5-10.5 (12?) cm. longis, (2.6) 3.5-5 cm. latis. Inflorescentia axillaris, racemosa, 3-7 cm. longa, epedunculata; pedicellis 2-3.5 mm. longis, bractea caduca praecici (a me non visa); bracteolis ca. 5-6 mm. longis, glabris, obovatis, per mediam longitudinem abaxialiter connatis, ad apicem rotundatis vel late acutis. Flores parvi; hypanthio cylindrico vel anguste campanulato, 2-2.5 mm. longo, extus glabro, ad faucem piloso; sepalis ellipticis vel oblongis, 4.5-5 mm. longis, 2-3 mm. latis; petalis obovatis vel obovato-ellipticis, ca. 8 mm. longis, 3-4 mm. latis; filamentis ca. 11 mm. longis; stipite ovarii hypanthium a 2-2.5 mm. excedenti; ovario ca. 2 mm. longo, glabro praeter secus suturam piloso; stylo ca. 10 mm. longo, glabro, stigmatibus terminalibus, capitato, parum obliquo. Fructus ignotus.

Tree 15 ft. (ca. 5 m.) tall. Branchlets glabrous, terete or slightly angled in the ultimate internodes. Leaves abruptly pinnate, leaflets 2 pairs; petioles 10-15 mm. long, canaliculate above; rachis 24-35 mm. long, canaliculate above; leaflets firm-chartaceous, elliptic or elliptic-oblong, base acute, apex

bluntly apiculate, glabrous except puberulous along the midvein above, midvein slightly raised above, prominent beneath, tertiary veins indistinct above, faintly visible beneath, the lower pair of leaflets mostly 4.5-7.5 cm. long and 2.2-3.5 cm. wide, the apical pair larger, mostly (7.5) 8.5-10.5 (12?) cm. long by (2.6) 3.5-5 cm. wide, glabrous throughout or sparsely puberulous on the midvein above. Inflorescence axillary, racemose, 3-7 cm. long, pedunculate, the rachis and pedicels glabrous or sparsely puberulous; pedicels 2-3.5 mm. long, subtending bract early deciduous (not seen by me); bracteoles mostly 5-6 mm. long, glabrous, obovate, abaxially fused for half their length, rounded or broadly acute. Flower with a cylindrical or narrowly campanulate hypanthium 2-2.5 mm. long, glabrous outside, pilose at the throat; sepals elliptic or oblong, 4-5.5 mm. long, by 2-3 mm. wide, glabrous; petals obovate or elliptic-obovate, ca. 8 mm. long by 3-4 mm. wide, glabrous except on the lower 1/4 of the abaxial surface where sparsely pilose; filaments ca. 11 mm. long, sparsely long pilose in the lower 1/3 to 1/2; ovary stipe exceeding the hypanthium by 2-2.5 mm., ovary ca. 2 mm. long, glabrous on the sides, pilose along the line of suture, style ca. 10 mm. long, glabrous, stigma terminal, capitate, slightly oblique.

PERU: Dept. Huánuco: Prov. Leoncio Prado; woods west of Santa Theophila above junction of Río Huallaga and Río Cuchara [between Tingo Maria and Aucayacu] Mildred E. Mathias & Dermot Taylor 5000 (holotype F; isotypes UCLA and other herbaria).

This species belongs to section *Stenosolen* Harms, and seems to be most closely related to *M. stenocladium* Harms from which it differs in the leaves having two pairs of leaflets, petioles 10-15 mm. long, inflorescence 3-7 cm. long, hypanthium 2-2.5 mm. long, sepals 4-5.5 mm. long, petals 11 mm. long, ovary glabrous except along the suture where pilose. By contrast, *M. stenocladium* has leaves unijugate, petioles 2.5-5 mm. long, inflorescence to 3 cm. long, hypanthium 6.5 mm. long, sepals 11-12.5 mm. long, petals ca. 20 mm. long, and ovary densely puberulous throughout.

The specific epithet honors one of the collectors, Dr. Dermot Taylor, former Chairman of the Department of Pharmacology, University of California at Los Angeles.

SWARTZIA HUALLAGAE D. Simp. sp. nov.

Arbor 9-16 m. alta, ubique glabra. Folia alterna, imparipinnata; stipulis minutis, caducis; foliolis 4- (raro 3-) jugatis, firme membranaceis, supra nitidis, reti venularum in superficiebus ambabus prominenti, foliolo terminali plerumque obovato. Inflorescentiae singulae (raro binae) ad nodos aphyllorum ramulorum veterum; alabastris globosis vel ellipsoidalis, diametro ca. 7-10 mm., 10-15 mm. longis, verrucosis, glabris. Flores grandes; calycibus irregulariter findentibus, intus glabris; petala una, alba, glabra, reniformi vel subcirculari, emarginata, basaliter unguiculata, 3-4 cm. lata, ca. 3 cm. longa, unque

4 mm. longo; staminibus glabris; pistillo glabro, stipite 8-10 mm. longo, ovario anguste oblongo, arcuato, ca. 15 mm. longo, stylo 6-15 mm. longo, stigmatum punctiformi. Fructus late cylindricus, (10) 15-30 cm. longus, diametro 4.5-6.5 cm.; valvis coriaceis.

Tree 9-16 m. tall, glabrous throughout. Branchlets 3- to 5-angled, often longitudinally striate between the angle-ridges. Leaves alternate, odd-pinnate; stipules minute, early deciduous, stipule scar 1.5 mm. long; petiole 4-8 cm. long, rachis (10) 14-19 cm. long, terete; leaflets 4-jugate (rarely 3-jugate), petiolules (2) 4-10 mm. long, blades firm membranous, shiny above, venation prominent on both surfaces (at least in dried material), terminal leaflet and subterminal pair usually obovate, base broadly acute, apex caudate-acuminate, (10) 12-18 cm. long including the 1.5-2 cm. long caudex, mostly 4.5-7.5 cm. wide, leaflets of the lower pairs oblong or elliptic to usually ovate in the basal pair, mostly 7-12 cm. long and 3.5-6 cm. wide. Inflorescences borne singly (rarely 2) at the nodes on older, leafless branches or rarely in the axil of persistent leaves on older branchlets, (4) 7-17 cm. long racemes; bracts ca. 1.5 mm. long and 1 mm. wide; pedicels 10-18 mm. long, bibracteolate at or above midlength, bracteoles 0.5-1.0 mm. long, inconspicuous. Flower buds globose to ellipsoidal, ca. 7-10 mm. diameter at maturity and 10-15 mm. long, verruculose, glabrous; calyx splitting irregularly, glabrous within; petal 1, white, glabrous, reniform or subcircular, emarginate, ca. 3 cm. long by 3-4 cm. broad, claw 4 mm. long; stamens glabrous, longer filaments ca. 3 cm. long, shorter filaments 1.7 cm. long, the anthers 5 mm. and 2.5 mm. respectively; pistil glabrous, stipe 8-10 mm. long, ovary narrowly oblong, arcuate, ca. 15 mm. long, style variable, 6-15 mm. long, stigma punctiform. Fruit broadly cylindrical, (10) 15-30 cm. long and 4.5-6.5 cm. diameter, slightly constricted between the seeds, valves coriaceous. According to Mr. Schunke's field notes the fruit is bright green, and the seeds very light green ("verde blancuzco") with a vivid yellow aril.

Type: José Schunke V. 4490 (holotype F, isotypes to be distributed to USM, US, G, etc.).

PERU: Dept. San Martín: Prov. Mariscal Cáceres; Dist. To-cache Nuevo; caserío de Cedro, margen derecha del Río Huallaga, J. Schunke V. 4490 (flowers); Balsa Probana, margen derecha del Río Huallaga, J. Schunke V. 4442 (fruits); Dist. Campanilla; camino a Las Achiras, al sudoeste del caserío de Sión, J. Schunke V. 3550 (fruit & flowers). — Dept. Loreto: Prov. Maynas; Dist. Alto Nanay; trocha a Pisco, a 4 km. de Santa Maria de Nanay, alt. 130 m., J. Schunke V. 2509 (flowers); Prov. Alto Amazonas; Yurimaguas, Ll. Williams 4003 (flowers). Vernacular names *paujil ruro* (Schunke 3550, 4442, 4490), *afasiremocaspi blanco* (Schunke 2509).

Two of these collections, Schunke 2509 and 3550, were distributed as *Swartzia* cf. *polyphylla* A. DC., det. D. Simpson 1970. The other two Schunke collections have not yet been distributed, and the Llewellyn Williams collection was probably distributed many years ago as general inserendae, at least it was so filed in the herbarium at Field Museum until recently.

This species is very closely related to *S. reticulata* Ducke, but differs from it in having much larger flowers, more and smaller leaflets, and the apical leaflets are usually obovate.

STYRACACEAE

PAMPHILIA VILCABAMBAE D. Simp. sp. nov.

Frutex vel arbor parva, 2-7 m. alta (specimen typi ex arbore ca. 2.5 m. alta, diametro 5-10 cm.); ramulis, petiolis, rache inflorescentiae, pedicellis, calicibusque dense ferrugineis-lepidotis in statu sicco, in statu vivo "nitidis et rufo-cupreis" (fide collectoris). Folia parva; petiolo tenui, 5-7 mm. longo; lamina coriacea vel subcoriacea, leviter bullata, plerumque elliptica vel elliptico-lanceolata, raro oblonga, ad basim acuta, apice acuminato, 5-7.5 cm. longa, plerumque 1.5-2.8 (3.2) cm. lata, supra glabra vel dispersione squamarum praesertim secus nervos, subtus densius lepidota, margine glandulifero et interdum revolutato, glandulis ad intervallis 1.5-4 mm. dispositis, costa nervisque subtus prominentissimis, supra parum impressis. Racemi in axillis foliorum singuli, plerumque 2-5 cm. (1-2.5 cm. pedunculo incluso) longi; pedicellis vulgo 2-3 mm. longis; alabastris ca. 6-8 mm. longis, diametro ca. 3 mm. Flores parvi; calyce cupulato, truncato et minute 5-dentato, plerumque 2 mm. longo; corolla in alabastro quinquangulari, ad maturitatem 6-7 mm. longa, lobis lineari-oblongis, intus a pilis simplicibus, adpressisque sparse tomentosa, extus a pilis stellato-lepidotis, flavis vel aureis dense vestita; tubo filamentorum 2.5-3 mm. longo, lobis ca. 2.7-3 mm. longis; antheris 5, linearis, ad paginam interiorem loborum tubi filamenti dorsifixis; stylo ca. 3 mm. longo, prope apicem glabro, versus basim densissime pubescenti; ovario densissime pubescenti. Fructus ignotus.

Small tree or shrub, 2-7 m. tall (type tree ca. 2.5 m. tall and d.b.h. 5-10 cm.). Branchlets longitudinally angled and grooved toward the apex; branchlets, petioles, inflorescence rachis, pedicels, and calices densely rusty-brown lepisote in dried condition, "lustrous and rufous-copper colored" in natural condition (fide collector). Petioles thin, 5-7 mm. long; leaf blades coriaceous or subcoriaceous, slightly bullate, usually elliptic or elliptic-lanceolate, rarely oblong, base acute, apex acuminate, 5-7.5 cm. long, mostly 1.5-2.8 (3.2) cm. wide, margin sometimes revolute, usually glandular, glands spaced 1.5-4 mm. apart, mid-vein and secondary veins very prominent beneath, somewhat impressed above, glabrous or with scattered lepidote scales speci-

ally along the veins above, only slightly more lepidote pubescent beneath. Racemes one per leaf axil, mostly 2-5 cm. long of which ca. 1/2 is peduncle and 1/2 is rachis; pedicels mostly 2-3 mm. long. Flower buds mostly 6-8 mm. long, ca. 3 mm. diameter; calyx cupulate, truncate and minutely 5-toothed, mostly 2 mm. long; corolla 5-angled in bud, 6-7 mm. long at maturity, the lobes linear oblong, sparsely tomentose with appressed, simple hairs within, densely covered outside with light yellow to yellow-gold, lepidote-stellate hairs; filament tube 2.5-3 mm. long, lobes ca. 2.7-3 mm. long, anthers linear, dorsally adnate to the inner surface of the lobes of the filament tube; style ca. 3 mm. long, glabrous near the top, very densely white pubescent toward the base as also the ovary. Fruit unknown.

PERU: Dept. Cuzco: Prov. La Convención; (73°34'W, 12°38'S) in more or less open and exposed, depauperate cloud forest becoming elfin forest (monte chico), on ridges and rounded "cumbres", and on steep slopes at ca. 2400-2655 m. alt., between Camps 3 and 4 (of the National Geographic Society Expedition to the Cordillera Vilcabamba, 1968), T. R. Dudley 10808 (holotype F; isotypes NA, USM); in very dense, dark, high cloud forest about halfway between Camp 4 and 5 at ca. 2600-2750 m. alt., T. R. Dudley 10802 (F, NA, USM).

Of the many interesting plants collected by Dr. Dudley and his associates in the Vilcabamba Range, this is one of the most unexpected. The genus *Pamphilia* differs from *Styrax* principally in having 5 stamens as opposed to 10 in the latter genus. Until now only three species of *Pamphilia* have been known, all limited to eastern Brazil, mainly Minas Gerais State. This fourth species closely resembles the Brazilian species in most significant features including the short racemes, and small, coriaceous leaves.

Although the International Code of Botanical Nomenclature recommends that specific epithets derived from geographical names be treated as adjectives, the alternative treatment as a substantive in the genitive case gives a shorter and more easily pronounced epithet. The name Vilcabamba is of Quechua origin and translates thus: *vileca* sacred, *bamba* valley.

Another collection, Dudley 11299, from this same mountain range is a *Styrax* and appears to be an undescribed species. Unfortunately the material is too badly fragmented to serve as the basis for proposing a new species. It serves to illustrate the need for more botanical collecting in that region.